The Latest Bipolar Research Finds New Genetic Risk Factors and More

by LANA BARHUM

The Latest Bipolar Disorder Research

The following are summaries related to new research on various bipolar disorder studies and reports.

Using Marijuana in Your Teens Increases Your Risk for Bipolar Disorder

Research has previously established a link between marijuana use and psychiatric conditions. A new study out of the University of Warwick in the United Kingdom now confirms marijuana use in your teens contributes to the development of bipolar over time.

Researchers specifically looked at the link between marijuana and hypomania, a symptom experienced by people with bipolar. Hypomania causes intense excitement, reduced sleep need, hyperactivity and feelings of excitement.

Researchers examined data on 3,370 study participants and analyzed the connection between marijuana use and the development of hypomania a few years later. They found that the link depended on the amount of marijuana used, with weekly usage being most associated with hypomania.

Bipolar Disorder Genetic Risk Combined with Traumatic Stress Leads to Increased Suicide Risk

A new study reported in the December 2017 issue of the *Journal of the American Academy of Child and Adolescent Psychiatry* finds people who are genetically susceptible to bipolar and who have also experienced traumatic stress have an increased risk for suicide. The researchers suggest the type of traumatic stress associated with the increased risk included bullying, sexual abuse, and domestic violence.

The results came from data of 307 children whose parents have bipolar disorder, and 166 children of parents without specific psychiatric conditions. Blood samples were collected, and DNA extracted.

Genetic risk scores aimed to explain how genes and environment contributed to self-harm. The young people studied had not yet developed bipolar, but results showed those with a genetic risk and traumatic experiences had suicidal thoughts and self-harm attempts.

Workplace Support Needed for People with Bipolar Disorder

According to a new study out of the University of Michigan in Ann Arbor, Michigan, workplace support is lacking for people with bipolar. Stigma, exclusion, and stereotypes in the workplace are to blame and eventually lead to job loss.

When workers disclose their conditions to employers and co-workers to receive accommodations afforded to

them by law, they are often met with negative responses. The University of Michigan researchers suggests disclosure puts a person's job at risk.

The study participants answered questions about the relationship between social stressors, such as conflict, isolation, and stigma, and how they affect a person's ability to do their job. The more stressors experienced, the more likely individuals will experience greater work impairments.

The results, according to the researchers, highlight the need to intervene in relationships between supervisors and coworkers.

Bipolar Disorders Biomarkers Might Differ By Gender

Researchers from Penn State University in Pennsylvania, have found men and women's immune systems respond differently to bipolar disorder.

Researchers measured zinc and neopterin levels from the blood of male and female hospital patients experiencing manic or depressive episodes and compared them to blood samples from healthy controls. Neopterin promotes white blood cells in the immune system, and zinc helps the immune system to function.

Researchers found variances between men and women in depressive symptoms and manic episode severity. Depression in women was worse due to high levels or zinc while mania in men worsened with higher levels of neopterin.

The results suggest the future possibility of diagnosing bipolar by measuring biological changes in the body, and tailoring treatments specific to each gender.

Early Symptoms Can Predict Bipolar Disorder

A new analysis of 39 studies reported in the *Harvard Review of Psychiatry* finds two patterns of early psychiatric symptoms that could identify young people are at risk for bipolar disorder.

The authors of the report suggest early symptoms are low indicators of future development of the disease, but a pattern of early signs increases risk with "high specificity." The study's findings link additional risk factors for developing bipolar disorder, including premature birth, head injury, drug exposure, sexual or physical abuse and stress, but these only increase risk slightly.

While other studies have reported patterns of prodromal (a period between the appearance of initial symptoms and the full disease development) symptoms and risk factors, this study confirms the reliability of this theory.

With further study, patterns and risk factors can lead to the identification of young people likely to develop bipolar and who may benefit from early invention.

Causes of Bipolar Disorder Are Now Better Known

After more than a decade studying 1,100 bipolar patients, researchers from the University of Michigan think they know what causes the condition. They have found that no one genetic factor, chemical imbalance, or life event causes every case of bipolar disorder.

In fact, every patient with bipolar varies from all the others. Even so, experiences fall into seven classes of characteristics.

The researchers collected and analyzed data over many years, about genes, emotions, life experiences, medical histories, sleep patterns, thought patterns, etc., in over 1,000 study participants, 730 who had bipolar disorder.

The seven characteristics, called pseudoclasses, include measurements doctors already use to diagnose and

track bipolar disorder. They also include:

- Cognitive changes – thinking, reasoning, and emotions
- Psychological characteristics – personality and temperament
- Motivated behaviors related to substance use
- Patient experiences, including traumas, abuse, and family and intimate relationships
- Sleep patterns and biological sleep processes
- Symptoms over time and response to treatment

While bipolar tends to run in families, the U-M researchers did not find any gene that is specifically related to the development of bipolar.

Next page: Additional bipolar disorder research you need to know about.

More Bipolar Disorder Research

New research from the University of Texas Health Science Center has linked epigenetic aging to bipolar disorder. The link may explain why people with bipolar are more likely to develop age-related diseases like type 2 diabetes, hypertension and Alzheimer's disease.

What Is Epigenetics?

Epigenetics looks at modifications to gene expressions in living things. These gene changes are regular and normal and can be influenced by numerous factors like your age, environment, lifestyle and disease state.

The study of epigenetics aims to fill gaps that science is yet to determine. For example, epigenetics can answer questions about how identical twins aren't completely identical, or it may explain why something that is usually genetic doesn't appear genetic, such a specific disease.

How Epigenetics Works

Epigenetics studies layered DNA sequences – molecule strings that make up DNA. These sequences can be viewed as the instruction manual of the human body.

In this hypothetical instruction manual, epigenetics is the text someone may have highlighted, and the different highlighted colors mean different things. For example, the important parts could be marked in yellow, and the less important parts are marked in pink.

Each epigenetic mark tells the body's cells how to process DNA – specifically how it should be processed. For instance, DNA can be marked with tiny molecules that either tell the cell if marks are needed now and if not needed now, then proteins are instructed to shut them down until an appropriate time.

Epigenetic changes are responsive to outside stimulus stimuli, where the body responds by adapting to that stimuli. Scientists are not sure what types of exposures affect genetic marks, or what mechanisms cause changes, but they suspect environmental and lifestyle factors to be triggers.

For example, childhood abuse or trauma may trigger DNA sequence changes, which may explain poor health in people who have experienced traumatic events or abuse. Bisphenol A (BPA), an additive used in plastics and has been linked to many diseases, including cancer, is another trigger for epigenetic modification.

Epigenetics has also tried to explain links between nature and nurture, especially in people who have had rough childhoods. Part of who are physically, mentally and emotionally has a lot to do with genetic makeup, but so are genetic changes that have responded to external factors and have promoted observable characteristics, including specific behaviors (i.e., stress response from watching how a parent handled stress or fear of an alcoholic

parent).

Epigenetics and Mood Disorders

Research has long established a connection between stress and person's ability to handle it. The effect of stress early on in our lives and the DNA/environmental interaction play a role in the development of depression and other mood disorders.

Research on bipolar disorder suggests patterns of DNA methylation play a role in regulating mood. Methylation are responses to DNA segment changes where there is no change in DNA sequence.

Researchers have found patterns of methylation in people with bipolar disorder, and even though these are just fragment findings, they are suggestive of a connection between epigenetics and mood disorders.

Researchers also think factors, such as parental neglect, childhood trauma or stress trigger chemical changes to our DNA. And these changes may even get passed on to children.

For example, a pregnant mother who has been exposed to chronic stress throughout her life might have a mood-related gene. She can pass the stress effect of the gene to her child, but not necessarily the gene itself, and if the effect of the gene is passed on, the child may eventually develop a mood disorder.

Epigenetic Aging and Bipolar Disorder

Epigenetic aging measures DNA molecule markers that have been chemically modified by the body's processes. Researchers have previously linked accelerated aging to bipolar disorder, but it was unknown what the connection was between epigenetic aging and bipolar disorder.

The University of Texas study compared blood samples from 22 patients with bipolar disorder, 16 siblings of these patients, and 20 healthy people. What they found was the people with bipolar had accelerated epigenetic aging, this compared to the healthy study participants.

Moreover, older bipolar patients had significantly faster epigenetic aging compared to the healthy subjects. They did not find this abnormality in younger individuals, and they believe this is because younger people have not been exposed to as much stress and trauma in their lives.

The Texas researchers also looked at mitochondrial DNA copy numbers and found a link between these and epigenetic acceleration.

Mitochondrial DNA are parts of cells that convert energy from food into form cells can use for biological and chemical processes. Most of this DNA can be found in the cell nucleus (a subunit of cells).

The communications between the nucleus and the mitochondria are what researchers believe link bipolar disorder to premature aging.

The Takeaway

Faster epigenetic aging might explain why people with bipolar are at a higher risk for age-related diseases. These newer findings suggest the same genetic and environmental factors related to bipolar might also connect to epigenetic aging.

If researchers know which how and which environmental factors promote epigenetic aging, they might be able to identify and modify risk factors in some patients. Further, these findings could lead to targeted treatments for people with bipolar and anyone with a genetic risk factor.

Research has previously found bipolar patients who are treated with lithium show slower signs of aging and

lithium findings suggest the drug may offset aging effects of bipolar disorder or even reverse it. Therefore, future bipolar treatment could potentially focus on treatments that slow down epigenetic aging and reduce the risk of age-related diseases.